

Marin Municipal Water District

Site Handbook

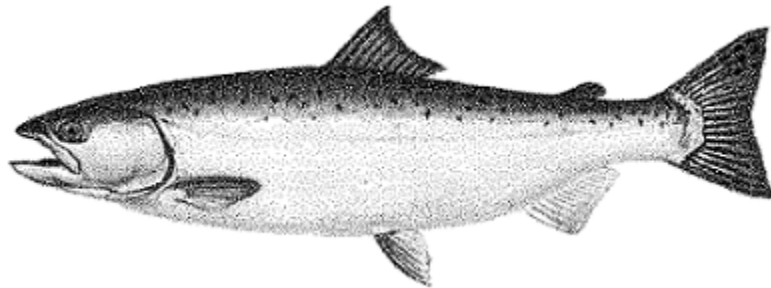


**MARIN MUNICIPAL
WATER DISTRICT**



Watershed Stewards Project Mission

The mission of the AmeriCorps Watershed Stewards Project is to conserve, restore, and enhance anadromous watersheds for future generations by linking education with high quality scientific practices.



Coho Salmon



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Introduction

Site Description

MMWD is the oldest municipal water district in California, chartered in 1912. Our fisheries program was created in 1997 to implement salmonid conservation measures required by the State of California. Our program consists of two full-time fisheries biologists, working with other biologists and natural resource professionals within MMWD's Watershed Department. MMWD is governed by a five-member, publicly-elected board of directors. Our headquarters is located in Corte Madera and our fisheries program is located at the Sky Oaks Ranger Station in Fairfax.

The Sky Oaks Ranger Station is the hub of the District's watershed management activities and houses the District's Natural Resource Management, Fisheries, Protection (Rangers), and Watershed Maintenance staff. There are nearly 30 staff who work out of Sky Oaks, plus two Conservation Corps North Bay AmeriCorps members and volunteers. The Fisheries Program consists of Gregory Andrew (Fisheries Program Manager) and Eric Ettlinger (Aquatic Ecologist). Natural Resource staff include Janet Klein (Program Manager) and Andrea Williams (Vegetation Ecologist). WSP members will also work closely with our Volunteer Coordinator, Suzanne Whelan, who will help organize volunteer events, schedule school programs, coordinate public correspondence, and track volunteer recruitment.

Key accomplishments of the Fisheries Program include:

- Installed over 50 large woody debris structures for coho habitat in Lagunitas Creek
- Repaired sediment sources at 37 sites throughout the watershed
- Revegetated eight sites on Lagunitas Creek
- Trained and supervised 30 past interns
- Conducted annual surveys for salmonid spawners, juveniles and smolts
- Conducted annual surveys for California freshwater shrimp
- Conducted four watershed-wide salmonid habitat typing surveys
- Removed over 100 non-native turtles from District reservoirs
- Developed an inter-agency agreement for woody debris management
- Developed an inter-agency agreement for unpaved roads management
- Monitored stream flows and water temperatures



General Calendar of Duties at MMWD

<i>Month</i>	<i>Location</i>	<i>Site Duties</i>	<i>Work Load</i>	<i>Typical Work Hours</i>
Fall				
October	Field / Office	Member orientation Salmonid population analysis	Light	Mon-Fri 7:00 – 3:30
November	Field / Office	Spawner surveys Data analysis	Moderate	Mon-Fri 7:00 – 3:30
Winter				
December	Field / Office	Spawner surveys Data analysis, report writing Educating	Moderate	Mon-Fri 7:00 – 3:30
January	Field / Office / Classroom	Spawner surveys Data analysis, report writing Educating	Heavy	Mon-Fri 7:00 – 3:30
February	Field / Office / Classroom	Spawner Surveys Data analysis, report writing Educating	Heavy	Mon-Fri 7:00 – 3:30
Spring				
March	Field / Office / Classroom	Smolt monitoring Data analysis, report writing Trout-in-the-Classroom	Heavy	Sat-Wed 7:00 – 3:30
April	Field / Office / Classroom	Smolt monitoring Trout-in-the-Classroom	Heavy	Sat-Wed 7:00 – 3:30
May	Field / Office	Smolt monitoring	Moderate	Sat-Wed 7:00 – 3:30
Summer				
June	Field / Office	Habitat enhancement monitoring / snorkel surveys Data analysis, report writing	Moderate	Mon-Fri 7:00 – 3:30
July	Field / Office	Habitat enhancement monitoring / snorkel surveys Data analysis, report writing	Moderate	Mon-Fri 7:00 – 3:30
August	Field / Office	Electrofishing surveys Snorkel surveys	Moderate	Mon-Fri 7:00 – 3:30



Description of Site Duties

<i>Salmonid Spawner Survey</i>	From November through February, Fisheries staff conduct spawner surveys in Lagunitas Creek and two tributaries: San Geronimo Creek and Devil's Gulch. Surveys consist of hiking upstream through the creeks counting adult coho salmon, Chinook, steelhead, and occasionally chum salmon. Redds are identified, measured, mapped and flagged. Surveys are conducted two to three days per week, as the weather allows, and daily survey lengths vary from two to five miles. Habitats surveyed include low gradient willow and alder habitat, redwood forest, steep bay riparian forest and suburban development. Land ownership includes the Golden Gate National Recreation Area, Samuel P. Taylor State Park, MMWD watershed land and private property. WSP members will be largely responsible for data entry, analysis and writing the annual report.
<i>Salmonid Smolt Survey</i>	From mid-March through May, Fisheries staff operate a rotary screw trap in lower Lagunitas Creek to estimate smolt emigration. Fish are swept into the trap, which must be checked each morning, including on weekends. Two or three people collect the fish from the trap, identify, measure and weigh them before releasing them downstream. A subset of fish are marked with fin clips and released upstream of the trap. Recapture rates of these marked fish provide an estimate of trap efficiency and the total numbers of smolts emigrating. WSP members will be largely responsible for data entry, analysis and writing the annual report.
<i>Turtle Observer/ Turtle Removal Program</i>	During the spring, MMWD recruits volunteers to collect data on turtles in our reservoirs. This data is used to track the proportion of native western pond turtles to non-native turtles, mostly red-eared sliders. Since 2004 MMWD has been removing non-native turtles to reduce competition with native turtles, which do not appear to be breeding successfully. Non-native turtles are given to a turtle rescue organization to be adopted. WSP members will likely assist with both volunteer recruitment and turtle trapping.
<i>Foothill Yellow- Legged Frog Docent Program</i>	MMWD also recruits volunteer "Frog Docents" to monitor conditions and educate hikers at Little Carson Falls. These falls are one of the only breeding locations for foothill yellow-legged frogs on the watershed and are also a popular hiking destination. Docents encourage hikers to stay out of the water and keep their dogs leashed while also informing them about this special, at-risk species. WSP members will be responsible for docent recruitment and training.
<i>Habitat Enhancement Effectiveness Monitoring</i>	During the summer, WSP members will monitor the effectiveness of large woody debris structures installed by MMWD to enhance juvenile coho salmon habitat. Members will map streambed depths around the structures to document pool formation and will snorkel around the structures to quantify fish use.
<i>Juvenile Salmonid Survey</i>	In late-summer and fall, Fisheries staff conduct a snorkel and electrofishing survey of juvenile coho salmon and steelhead trout at 13 sample sites in the Lagunitas Creek watershed. Two people use backpack electrofishers to immobilize fish while two netters scoop fish and place them into buckets. At the end of each pass, fish are identified, anesthetized, measured, weighed, and placed into a mesh basket in the stream until sampling is completed. Habitats that are too deep for electrofishing are snorkeled. Generally three people snorkel side-by-side in an upstream direction and count fish as they pass. Fish densities are calculated for each type of habitat and extrapolated to population estimates for entire streams, based on available habitat typing data. WSP members will assist with snorkeling, data entry and data analysis.



ISPs and Outreach Events

ISP Information

During Year 18 WSP members organized a habitat restoration event on private land adjacent to San Geronimo Creek. This experience can be used as a model for future ISPs or members can develop projects that aren't limited to what's already been done. Creativity is encouraged!

Outreach Information

Volunteer Recruitment MMWD hosts numerous volunteer events and has cultivated an extensive volunteer network. We use these events, our mailing lists and our website, in collaboration with our Volunteer Coordinator, to recruit Fisheries volunteers.

Public Outreach MMWD has its own blog, <http://thinkbluemarin.wordpress.com/>, which is one of our forums for engaging the public in our work. During the salmon spawner season we write weekly updates on spawner observations and inform the public about where and when to view spawning salmon. These blog posts are often picked up by local newspapers and find their way into other blogs and digital media.

Education

Education Notes

Real Science Education In Year 18 our members taught third and fifth graders about salmonid biology, conservation and water supply issues at the Willow Creek Academy, a Title I charter school in Sausalito. MMWD also has an ongoing collaboration with Trout Unlimited and CDFG's Trout-in-the-Classroom Program to match members with teachers raising trout fry in their classrooms. When these trout fry are old enough, they will be released on MMWD property, where students can learn about watersheds, water supply and conservation, and salmonid ecology.

Site / Region Specific Education Resources

Classroom Aquarium Education Program (Trout-in-the-Classroom) MMWD is coordinating with CDFG's Trout-in-the-Classroom Program to identify local elementary school classrooms participating in the program that need additional instruction on salmonid conservation and water supply issues. The coordinator of the Bay Area program is Ethan Rotman: (415) 892-0460.

North Bay Trout Unlimited Volunteers with NBTU have extensive experience teaching children through the Trout-in-the-Classroom Program. Members have offered educational materials, curricula, and support to WSP members. Coordinator: Chuck Shultz (imayrespond@netzero.net)

MMWD Volunteer Program Our volunteer program has developed relationships with local schools and teachers, and can identify the most successful of those relationships. Coordinator: Suzanne Whelan (415-945-1169).



Local Ecology

Descriptions of Local Ecology

Public Lands Marin County is graced with an abundance of public lands that stretch unbroken from the Golden Gate in the south to Point Reyes in the north. Individual parks include Golden Gate National Recreation Area, Muir Woods, Mount Tamalpais State Park, Samuel P. Taylor State Park, Point Reyes National Seashore, and the Mount Tamalpais Watershed Lands. These lands have been identified by the United Nations Educational, Scientific, and Cultural Organization (UNESCO) as the Golden Gate Biosphere Reserve, a designation reserved for biological hotspots like the Amazon rainforest.

Lagunitas Creek Lagunitas Creek begins on Mount Tamalpais and runs northwest through MMWD's watershed lands and a series of reservoirs, through Samuel P. Taylor State Park and federal lands, and eventually to Tomales Bay near Point Reyes Station. The riparian forests adjacent to the creek are dominated by redwood, Douglas fir, alder, bay and willow.

Salmonids Lagunitas Creek is one of the last remaining strongholds for coho salmon in California. In the 2008 report Salmon, Steelhead, and Trout in California: Status of an Emblematic Fauna, Moyle et. al described Lagunitas Creek as the most important stream in the Central California Coast (CCC) coho salmon ESU:

"There is every reason...to think that CCC coho populations are nearing extinction, with the possible exception of the population in the Lagunitas Creek drainage."

The report's five recommendations to prevent extinction of these fish include:

"Focus on Lagunitas Creek as a demonstration stream to publicize the plight of the coho and to demonstrate restoration techniques."

Other native salmonids include steelhead, Chinook, and the occasional chum salmon.

These species spawn throughout Lagunitas Creek up to Peters Dam, an impassable barrier that forms Kent Lake. Other major spawning tributaries include Olema Creek, San Geronimo Creek and Devil's Gulch.

Other species of interest Lagunitas Creek is also home to the California freshwater shrimp, which is only found in approximately twenty streams in Marin, Sonoma and Napa Counties. The shrimp is a federally endangered species, although the Lagunitas Creek population is one of the largest and appears to be stable.

The densest concentration of northern spotted owls in the United States is in Marin County. Unlike their old-growth-dependent relatives further north, Marin's owls often nest in second growth forest and even the occasional bay tree.

Sensitive amphibian species include the red-legged frog and foothill yellow-legged frog. Red-legged frogs are somewhat abundant in Point Reyes, but are very rarely seen in Lagunitas Creek. Two small populations of foothill yellow-legged frogs are found on MMWD watershed lands, but extensive surveys have not been conducted in much of the Lagunitas Creek watershed.



Housing and Local Resources

Housing Notes

Affordable Housing

Marin County real estate is very expensive, but group housing and room rentals provide affordable options. Past and current AmeriCorps members with MMWD have found housing in Marin and the East Bay that has allowed them to eat and recreate, and sometimes save money.

Location

The Sky Oaks Ranger Station is located five minutes outside of Fairfax, and driving to the 101 Freeway can take 30 minutes in traffic. The shortest commute times can be found by living in Fairfax, San Anselmo, San Rafael and the San Geronimo Valley communities, including Woodacre.

Local Resource Contacts (kudos to SPAWN)

Useful websites:

- **Craigslist** – housing, jobs, furniture (free and not), everything essentially. Began in SF, so pretty active. Useful in finding activity partners and volunteer events.
<http://www.craigslist.org>
- **SGVCommunity** on yahoo groups – housing, general info (and news) about San Geronimo Valley. Useful to post volunteer opportunities on it. Sometimes part time jobs are posted here, too.
<http://groups.yahoo.com/group/sgvcommunity/>
- **Marin Freecycle** on yahoo groups – find and give stuff away for free. Members can also post if members are looking for something specific.
<http://groups.yahoo.com/group/marinfreecycle/>
- **Yelp.com** – a review website started in SF. Very useful in finding restaurants, but mostly useful for SF searches. Can be used to find things from eye doctors to hair stylists.
<http://www.yelp.com>

Non-Websites

- **Bulletin Boards** – On post offices in West Marin, and at all the delis.
- **Recyclery** – store in San Rafael that fixes up bikes and sells refurbished bikes, all to raise money for a non-profit; Trips for Kids.

Food Stores

- **United Grocery Stores** – this is the least expensive grocery store. One on Red Hill in San Anselmo, one in San Rafael (other side of 101).
- **Trader Joe's and Whole Foods** – both near the United on the other side of 101. TJ's is affordable, and the items are often organic. Both grocery stores accept EBT.
- **Good Earth** – Natural foods store on Sir Francis Drake in Fairfax. This grocery store has delicious food, but it is relatively expensive. It accepts EBT.
- **Fairfax Market IGA** – Fairfax Market is just a bit more expensive than United Grocery, and is the closest grocer to the Valley. It is found in Fairfax on Sir Francis Drake. Members need to tell them before members swipe that members are using EBT.



- **Andronico's and Mollie Stones** – overpriced.
- **Lagunitas Deli** – Accepts EBT for deli items.
- **Woodacre Deli** – in Woodacre, owned by same people as Lagunitas.
- **Palace Market and Perry's Deli** – Pt Reyes Station, Fairfax and Inverness.

Doctors

There is one small clinic in Point Reyes, Urgent Care- in the Terra Linda area of San Rafael and Planned Parenthood near downtown San Rafael. There are medical facilities and physicians listed on the insurance company's website.

Community Information

Map of Area





Community Demographics

Marin County is the wealthiest county in California, and among the wealthiest counties in the United States, although this does not describe the entire county. Demographics vary from community to community, with each community having a distinct character. The towns of west Marin, such as Point Reyes Station, have a distinctly rural feel, while San Rafael is a small, culturally diverse city. In between are suburban communities of various sizes, San Francisco is a short distance away, and is one of the most vibrant and culturally diverse cities on Earth.

Community Services

Social Services West Marin Community Services
<http://westmarincommunityservices.org/programs.html>

Healthy Marin <http://www.healthymarin.org/index.php>
“HealthyMarin.org is a one-stop source of information about the health of our community. Sponsored by the Marin Department of Health and Human Services, HealthyMarin.org presents nonbiased data and information about our community, healthy communities in general and about how communities change. Its purpose is simply to connect people and information.”

Libraries <http://www.marinlibrary.org/>

Farmers Markets The Agricultural Institute of Marin operates four farmers markets in the county.
<http://www.agriculturalinstitute.org/>

Entertainment and Community Events

Resources for Affordable Entertainment Options

- | | |
|--------------------------------|---|
| <i>Free / Cheap Activities</i> | <ul style="list-style-type: none">• FunCheapSF (http://sf.funcheap.com/) – online list of activities in the Bay. Option to receive two emails per week about events happening that week• Free papers – <i>Pacific Sun</i> and <i>SF Weekly</i>. Good for events, activities, deals and coupons. |
| <i>Other Event Resources</i> | <ul style="list-style-type: none">• Marin County Events - http://www.marin.org/calendar/index.cfm• Marin County Environmental Events - http://www.marin.org/calendar/enviro_calendar.cfm• Marin Visitor's Bureau - http://www.visitmarin.org/event-calendar.html |



Helpful Hints

Transportation

The West Marin Stagecoach is a small bus running from San Rafael to Inverness. There is no public transit between Fairfax and the Sky Oaks Ranger Station.

The Fisheries program has two trucks and WSP members will not be expected to use their personal vehicles for work.

Contact List

<u>Name</u>	<u>Title</u>	<u>Office Phone</u>	<u>Mobile Phone</u>	<u>Email</u>
Gregory Andrew	Site Supervisor	415-945-1191	415-699-6580	gandrew@marinwater.org
Eric Ettlinger	Mentor	415-945-1193	415-694-0647	eettlinger@marinwater.org
Suzanne Whelan	Co-Mentor	415-945-1169	415-425-1907	swhelan@marinwater.org
Laurie Offenbach	Admin Assistant	415-945-1180		loffenbach@marinwater.org